



Introduction to the

INSTITUTE OF CORROSION

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ATKINS

Member of the SNC Lavalin Group

On behalf of



ICorr Aberdeen

University of Aberdeen
08/09/2017

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About Corrosion



About Corrosion

Corrosion costs (general):

- 276 billion USD per year for total direct cost of corrosion in the United States; equivalent to 3.1% of GDP.

(Source: NACE – The Worldwide Corrosion Authority.)

- Corrosion cost to the UK is about 4% of GDP

(Source: Institute of Corrosion, ICorr, U.K.)



Corrosion costs (Oil and Gas industry):

- 7 billion USD per year for gas and liquid transmission pipelines.
- 1.4 billion USD per year for oil and gas exploration production.

About Corrosion

Consequences of Corrosion:

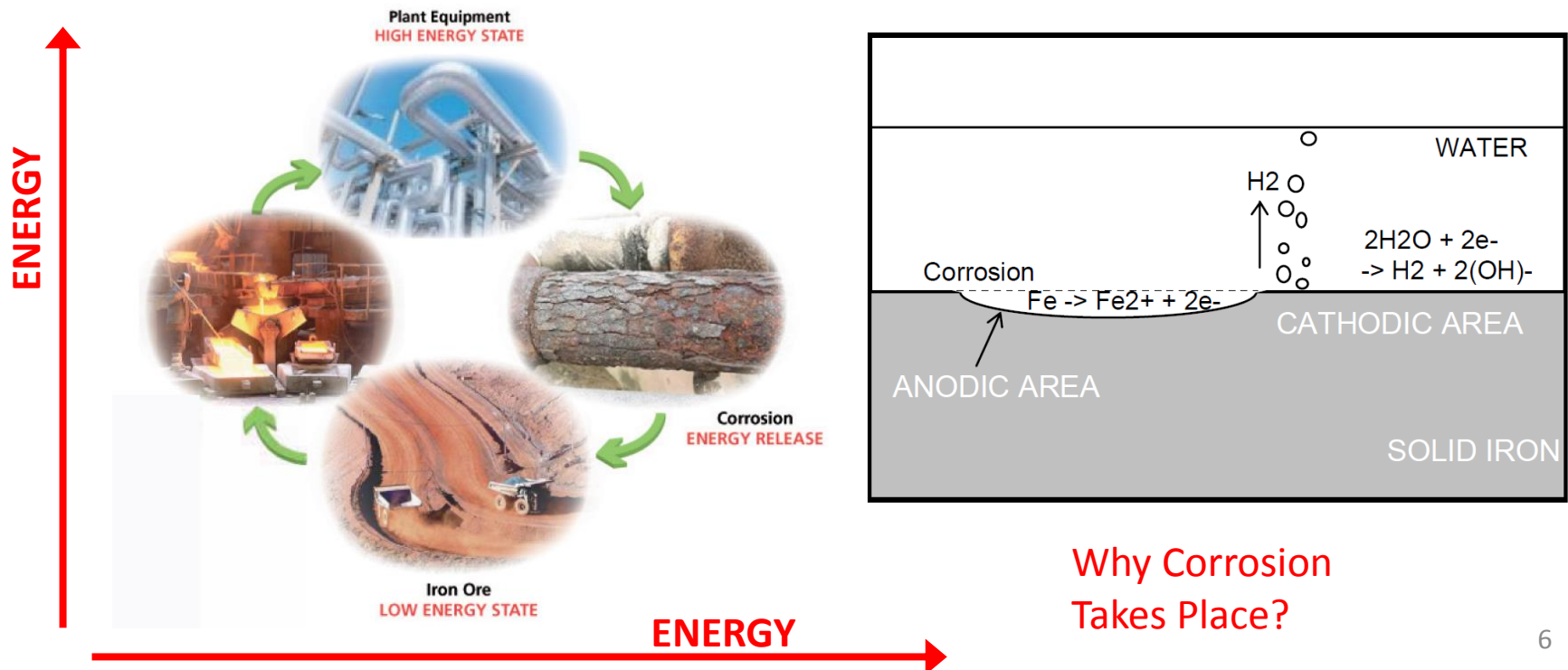
- Loss of mechanical strength and structural failure or breakdown
- Hazards or injuries to people
- Environmental impact due to leaks from vessels and pipes
- Loss of time in availability of industrial equipment
- Reputational damage



About Corrosion

What is Corrosion?

- Corrosion is the deterioration of a substance, usually a metal, or its properties because of a reaction with its environment. (NACE)
- Physicochemical interaction between a metal and its environment which results in changes in the properties of the metal and which may often lead to impairment of the function of the metal, the environment, or the technical system of which these form a part. (ISO 8044)



About Corrosion

Corrosion Triangle:

WATER



CORRODENT



Corrosion Control:

METAL

METAL + WATER + CORRODENT = **CORROSION**

~~METAL~~ + WATER + CORRODENT = NO CORROSION

METAL + ~~WATER~~ + CORRODENT = NO CORROSION

METAL + WATER + ~~CORRODENT~~ = NO CORROSION

Design the material

**Control the environment
Design a barrier**

About Corrosion



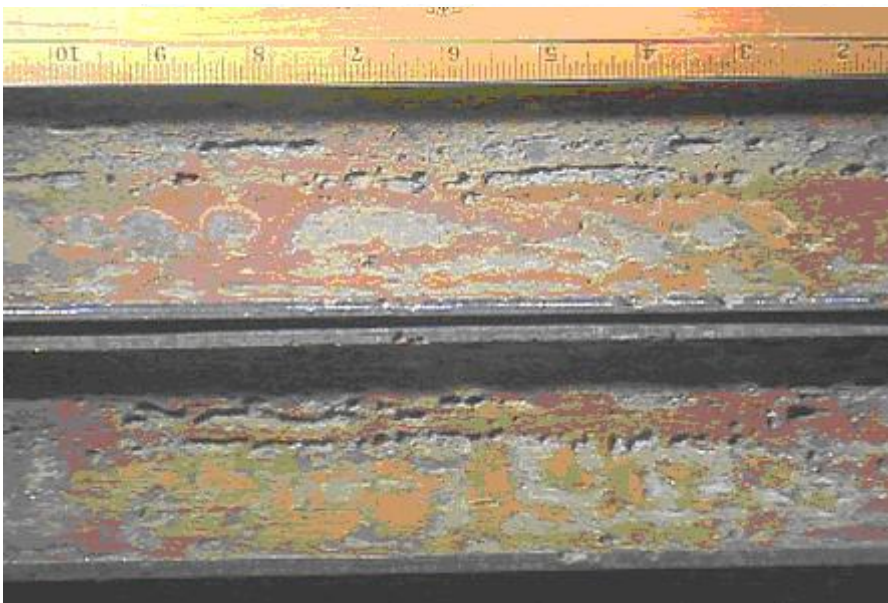
Corrosion Control Engineering

Factor	Controlling Method	Barrier	Controller
Conductivity	Stop/slowdown electrons	Non-conducting coat/paint	Coating/Painting Engineer/Inspector
Conductivity	Reduce conductivity	Keep the process dry	Process Engineer
Electrochemical reaction	Apply current	Cathodic protection	CP Engineer/Inspector
Oxygen	Stop/slowdown Oxygen	Barrier coating/paint	Coating/Painting Engineer/Inspector
Anodic reaction	Electronegativity	Corrosion resistant metal	Material/Corrosion Engineer
Electrochemical reaction	Stop/ reduce reaction rate	Corrosion inhibitor	Chemical/Corrosion Engineer
Electrochemical reaction	Stop/ reduce reaction rate	Passive layer	Material/Corrosion Engineer

About Corrosion

Types of corrosion

- There are more than 45 types of failure mechanisms in 5 categories as per API 571 only in oil and gas industries
- **Mechanical and Metallurgical**
- **Uniform or Localized Loss of Thickness**
- **High Temperature Corrosion**



Brittle fracture
Problem induced Corrosion
Stress Oxidation Cracking

CO₂ Corrosion
Erosion

About ICorr



ICorr (<http://www.icorr.org/>) is a learned society and registered charity that has been serving the corrosion science, technology and engineering community since **1959** in the fight against corrosion.

A screenshot of the ICorr website homepage. The top navigation bar is dark blue with white text for contact information (01604 438222, admin@icorr.org) and menu items (ICorr Structure, The History of Institute of Corrosion, ICorr Awards, News, Correx Ltd, Sources of Information, Members Area). Below the navigation bar is a dark blue banner with three columns: 'Training Courses' (We offer a range of courses and qualifications to help you develop the latest practical skills and thinking.), 'Professional Development' (CPD comprises learning activities that you undertake to gain knowledge and experience in order to help you in your professional career as a corrosion scientist or engineer.), and 'Job Board' (For all the latest Corrosion Industry jobs, visit the ICorr Job Board). To the right of the banner are links for 'Home', 'Contact us', and a search icon. Below the banner is a grey section titled 'Galloway Award' with a detailed description of the award, including its history and submission details. At the bottom of the screenshot is a 'Membership' section with a background image of a park and the text 'United Kingdom'.

Galloway Award

This award was created in 1998 in memory of Jack Galloway, a founder member of the British Association of Corrosion Engineers (BACE) from which the Institute of Corrosion derived, to encourage contributions from students working in any area of corrosion science and corrosion engineering.

Students are invited to submit a short technical article discussing their work for consideration for the award. This should be 3000-5000 words in length and may include figures as appropriate. The winning article will be published in Corrosion Management, and the prize consists of a certificate and a cheque for £250. The Institute does not retain copyright of the material, so this does not prevent subsequent publication of the work in a scientific journal if students wish to offer a snapshot of an ongoing project, or work towards a thesis.

The winner is also invited to present their work at the annual Corrosion Science Symposium. Submissions should be sent via email at any time to the CSD Chair.

Membership

About ICorr



Technical divisions:

- Corrosion Science Division
 - ✓ Corrosion Symposium (5-6 September 2016 - 57th Corrosion Science Symposium)
- Corrosion Engineering Division
 - ✓ Forums
 - ✓ Working groups (Cathodic protection - Nuclear - Coatings - Oilfield chemicals - Water treatment - Corrosion in Concrete)

Regional Branches:

Aberdeen, London, Midlands, Northeast, Northwest, and Yorkshire.

Technical questions

[Back to Forums](#) · [Register](#) · [Login](#)


TOPIC TITLE	LAST POST	REPLIES	VIEWS
316 Ti Stainless corrosion due to chlorine any information on the exposure limits of 316 Ti to chlorine residue before causing reduced life?		-	7099
Is there a difference between painting and coating inspector	by: dgffgh Wed 24th Aug 2016	4	742
Corrosion Inhibitor Tank Will a corrosion inhibitor offer suitable corrosion protection on its own in a carbon steel corrosion inhibitor tank or would additional protection be required, "internal lining"?	by: mekh Thu 17th Sep 2015	4	4707
TSA vs Protective Coatings All, if challenged with; 'what is the most cost effective corrosion protection system between TSA and other protective coating systems operating in an offshore environment?' what would your answer be?	by: jithkriz Thu 16th Jul 2015	2	491
Corrosion due to ground waters Hi all, I was wondering if anyone could recommend a good article on corrosion by groundwaters, specifically some estimated limits of composition as regards, sulphate, nitrate, pH, alkalinity, hardness, etc. to be wary of when making a corrosivity assessme	by: winnie Thu 9th Jul 2015	1	-
cathodic shielding could any one tell me which standards specially are about cathodic shielding and preventing methods?	by: malik.boumniel Tue 8th Oct 2013	1	4727
cathodic shielding I'm interested in getting some information about cathodic shielding	by: anticorrosionpaint Fri 12th Oct 2012	1	3683
Microbiologically Induced Corrosion Looking for further details of MIC particularly when seen in sea water etc	by: henry tan Tue 23rd Jul 2013	2	4164

About ICorr



Continued Professional Development (CPD)

- CPD comprises learning activities that you undertake to gain knowledge and experience in order to help you in your professional career as a
 - Chartered Scientist or
 - Chartered Engineer
- Additional to the normal duties of your day-to-day employment such as,
 - training days
 - professional mentoring of colleagues or others
 - attendance at conferences
- mycareerpath[®] (CPD record database)



**CONTINUING PROFESSIONAL DEVELOPMENT
ICORR ABERDEEN BRANCH**

JOINT MEETING OF **THE INSTITUTE OF CORROSION AND THE
NATIONAL ASSOCIATION OF
CORROSION ENGINEERS**

ON THE 31ST MAY, 2016 BETWEEN 18:00-19:30

ICORR / NACE PRESENTATION

PRESENTERS: DAVE BACON OF CENTRICA
 PAUL BIRKINSHAW OF MACAW

TOPIC: PERFORMING INLINE INSPECTION –
 OPERATION ISSUES

ATTENDEE: _____

VERIFIED BY: *Eugene Ogori 204930* **COMMITTEE MEMBER
ICORR ABERDEEN**

The British Association of Corrosion Engineers, now the Institute of Corrosion was founded in 1959 to promote the dissemination of technical information about corrosion matters and to develop by means of social activities, the free interchange of information among members, establish suitable qualifications for corrosion engineers, and promote of standardisation in the terminology and techniques of corrosion control.

The Institute of Corrosion is recognised by the *Institute of Materials, Minerals and Mining (IOM)*, *British Institute of NDT (BINDT)* and by the *Institute of Marine Engineering, Science and Technology (IMarEST)* as offering technical presentations that contribute to an individual member's Professional Development requirements

<http://www.icorr.org/branches/aberdeen.phtml>

About ICorr



Training and Qualification

- ICorr Certification Scheme
 - Painting Inspector (Level 1/2/3)
 - Coating Inspector (Level 1/2)
 - Pipeline Coatings Inspector
 - Insulation Inspector
 - Fire Proofing Inspector
- Cathodic Protection (CP) Certification Scheme,
 - Cathodic Protection Technician (Level 1/2/3)
 - professional mentoring of colleagues or others,
 - attendance at conferences.



ICorr (Aberdeen Section)



2017-2018 Session Committee

Chair: Dr Yunnan Gao

Vice Chair: Hooman Takhtechian

Secretary: Dr Nigel Owen

Treasurer: Alistair Seton

Event Co-ordinator: Amir Attarchi

Publicity Secretary: Stephen Tate

University Liaison / CPD Officer: Dr Philip Enegele

Committee Members: Dr Muhammad Ejaz, Frances Chalmers, Bryn Roberts, Dr Abdulmotaleb Suleiman

ICorr (Aberdeen Section)



<https://sites.google.com/site/icorrabz/home>

Institute of Corrosion Aberdeen Branch

Institute of Corrosion website

Visit the [Institute of Corrosion](http://www.icorr.org) website to find out more about Conferences and Events, Education and Training as well as the Technical Forums at <http://www.icorr.org>.

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Welcome to the Aberdeen branch of the Institute of Corrosion

Thanks to our branch sponsors, the Aberdeen branch of the Institute of Corrosion is able to host a technical programme of monthly presentations from September through to May.

Institute of Corrosion Aberdeen branch meetings begin at 18:00 with a complimentary light buffet and the opportunity to network with other corrosion professionals, followed by the technical presentation at 18:30. The exception this year is the April 2014 meeting which begins at 17:30 for a 18:00 start, after the [Marine Corrosion Forum](#).

Our meetings are typically held on the last Tuesday of the month at the [Palm Court Hotel](#), 81 Seafield Road, Aberdeen, AB15 7YX.

The Institute of Corrosion is recognised by the Institute of Materials, Minerals and Mining (IOM3), British Institute of NDT (BINDT) and by the Institute of Marine Engineering, Science and Technology (IMarEST) as offering technical presentations that contribute to an individual member's Professional Development requirements.

Details of local Aberdeen events from the Institute of Corrosion (ICorr) are shown in our [Technical Programme](#).

Subscribe to the Institute of Corrosion



ICorr (Aberdeen Section)




<https://sites.google.com/site/icorrabz/resource-center>

Institute of Corrosion website

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Downloads

U. 2016/2017 ICorr Aberdeen Presentations

<input type="checkbox"/>	📄	2017-01-31 Dr N Faisal and Dr G Droubi _ RGU_ Acoustic Emission Techniques View	January 2017 Technical Presentation	25 Apr 2017, 14:48	Aberdeen ICorr
<input type="checkbox"/>	📄	2017-02-28 Dr Jake Davies_Permasense_NII Corrosion and Erosion Monitoring Solutions View	February 2017 Technical Presentation	25 Apr 2017, 14:48	Aberdeen ICorr
<input type="checkbox"/>	📄	2017-03-28 Cosasco Corrosion and Erosion Monitoring Presentation _ ICorr Industrial Visit.pdf View	March 2017 Industrial Visit	25 Apr 2017, 14:48	Aberdeen ICorr
<input type="checkbox"/>	📄	2017-04-25 Tim Froome of Beasy_To Help Assess Anode Output_Well Casing Current Balancing.pdf View	April 2017 Technical Presentation	26 Apr 2017, 08:39	Aberdeen ICorr
<input type="checkbox"/>	📄	2017-05-30 Simon Daly of Hempel_A	May 2017 Technical Presentation	6 Jun 2017, 08:10	Aberdeen ICorr

ICorr (Aberdeen Section)



<https://sites.google.com/site/icorrabz/calendar>

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Local Technical Programme

ICorr Aberdeen Branch Programme of Events

Today ◀ ▶ **Wednesday, 6 September** ▼ Print Week Month Agenda

Tuesday, 26 September
18:00 Joint TWI & ICorr Aberdeen Branch Meeting
Tuesday, 31 October
18:00 ICorr Aberdeen Branch Meeting
Tuesday, 28 November
18:00 Joint IOM3 and ICorr Aberdeen Branch Meeting
Tuesday, 30 January 2018
18:00 ICorr Aberdeen Branch Meeting
Tuesday, 27 February 2018
18:00 ICorr Aberdeen Branch Meeting
Tuesday, 27 March 2018
18:00 ICorr Aberdeen Industrial Visit - BOOKING REQUIRED

Displaying events until 15/6. [Look for more](#)

ICorr Aberdeen Events



A journal of the Institute of Corrosion

Corrosion Management

Issue 137 May/June 2017

Designing and fitting offshore and onshore CP systems

www.icorr.org



Remembering David Deacon
Page 10



Technical issues examined in our latest series
Page 14

Institute News

BRANCH NEWS

Aberdeen Branch

The third meeting of 2017 was held on Tuesday the 28th March, with 28 attendees representing major companies including Atkins, BP, CNR, DNV GL, Lloyds Register, Oceanering, Subsea 7, TOTAL and Wood Group.

The event was an industrial visit to the premises of Cosasco Europe HQ in Aberdeen, to hear about the latest Advances in Probe and Coupon Monitoring and Safe Access / Retrieval of Data, with many live demonstrations being performed.

Corrosion monitoring devices are considered essential to help prevent against loss of containment, industrial accidents and possible HSE prosecution, and Derek Morton, Cosasco's Business Development Manager with over 35 years industry experience, provided an excellent start to the evening with a comprehensive history of the development of Corrosion Monitoring Technologies over the past 60 years, covering every conceivable process application and both intrusive and non-intrusive devices, across all industries.

Specialist equipment for solids erosion tracking and production well management was also illustrated. Solids determination to minimize erosion and determine the solids-free flow rate is considered essential practice for maximising equipment life. A lively debate followed the speaker presentation with many questions from the audience.

There were opportunities later to inspect at close hand, a wide range of advanced electronic sampling tools and data reporting systems, with Cosasco consultants and Engineers including Andy Allan, Mark Manlywaney, Richard Fae, James Taylor, Sandy Tveddle and Dean Smith (Aberdeen Base Manager), all on hand to explain how such devices can be optimised to best advantage.

The activities that followed the technical presentation included informative demonstrations of pressurised retrieval operations of data logging devices, wireless monitoring technologies, probe and chemical monitoring applications and safety isolation devices. There were also a number of poster displays and the wide range of models and test rigs certainly kept the attention of the branch members throughout the evening. Advanced monitoring probes were displayed, including those intended specifically for laboratory use such LFR devices. The differing sensitivity and speed of available probes was clearly demonstrated, along with their most commonly used applications, e.g. Galvanic for water injection services and their relationship to other types of process instrumentation and to chemical injection monitoring was also explained.

The associated retrieval devices (which are either mechanical or hydraulic based tools) can work across a range of pressures up to 8000 psi with telescopic and non-telescopic options. Lower cost intrusive monitoring options, such the use of test coupons were also highlighted.

This event created a tremendous amount of interest from attendees, with an extended networking session following the event and some splendid catering provided by Cosasco staff which was very well received by all. It proved to be an excellent event in every respect.

The April meeting, held on Tuesday 25th, had 40 attendees from local companies, and considered advances in Cathodic Protection, looking at Simulation Techniques to help assess CP Current Output of Buried Subsea Pipeline Anodes from Field Gradient Measurements, with a most interesting presentation by Tim Froome of Beasy. The branch evening event followed the annual Aberdeen meeting of the Marine Corrosion Forum, enthusiastically chaired by Phil Dent.

Beasy based in Southampton, serve a wide industry base and focus specifically on how CP field distribution modelling can help better inform our understanding of (often very complex) cathodic protection behaviour and to help engineers assess mitigations and improve the CP design to be implemented. The application of their specialist software was very effectively demonstrated throughout the evening, showing the use of advanced 3D Graphics to illustrate CP current flows under a range of different conditions such as buried CP current sources (sacrificial anodes), local current activity occurring around pipeline coating defects, long range current flows, vertical current distributions and demonstrations of shielding effects / possible CP under-protection at some sites. The paper very usefully complemented an earlier one given by Tim on CP effects at Cravices and Voids at the afternoons MCF Event.

Tim showed how the modelling software can assist in both determining the overall CP system performance and ensuring adequate protective current distribution, as well as assisting in determining the overall CP system life and the likely relative consumption of CP system anodes.

Many questions from the audience were forthcoming including the future integration of the CP Models with established surveys methods used by major subsea survey contractors, so as to make the best use of gathered CP data and to optimize reporting for the CP Systems owners.

The CP Flowline phenomenon aroused great interest amongst gathered delegates and the speaker explained that Beasy are intending to develop these relationships forward in the future, so as to assist the subsea industry and the extensive Marine CP markets.

For information about the Aberdeen branch activities please contact our branch secretary, Frances Chalmers, ICorrABZ@gmail.com, alternatively a calendar of local events of interest to corrosion professionals in the Aberdeen area and the opportunity to sign up to the branch mailing list is available at <https://sites.google.com/site/icorrabz/home>

Aberdeen Branch have also established their new Media Centre, which can be found at <https://www.linkedin.com/in/aberdeen-icorr/recent-activity/>



Derek Morton explains the concept of under insulation monitoring.



Modelling of CP current flowlines is clearly explained by the speaker.



James Taylor demonstrates the High pressure mechanical retrieval tool.

ICorr Aberdeen Events 2017-2018



Date	Speaker	Topic
26th September '17	Susan Jacob – CAN/Total	Joint TWI Event. An Investigation into the Wrinkling Phenomenon on CRA Pipelines and its impact on Pipeline Integrity
31st October '17	IMG and Walker	Special Composite Wrap Event. Paper 1: Established Composite Engineering in 2017 Paper 2: Composite Repairs – A Long Life-Time Repair Solution (Walker)
28th November '17	Oil and Gas Technology Centre and TRAC	Paper 1: Managing Corrosion Under Insulation using novel technologies (OGTC) Paper 2: Topic on work to address corrosion under composite repairs (TRAC)
30th January '18	Aquatec Group and TAQA	Special CP Event. Paper 1: Retrofit CP Monitoring to Reduce Inspection Frequency (Aquatec Group). Paper 2: Impressed Current Cathodic Protection Retrofit Strategy in the North Sea (TAQA).
27th February '18	LUX Assure	Function-related dosage of corrosion inhibitors; the development of an on-site, operator deployable technology
27th March '18	Element Materials Technology	Industrial Visit to Element's New H2S / Sour Service Lab
24th April '18	Deepwater and BP/Oceaneering	Joint MCF Event. Paper 1: New Methods for Subsea Pipeline inspection (Deepwater). Paper 2: A Newly Built Corrosion Management Strategy – Lessons Learned (BP/Oceaneering)
29th May '18	Sonomatic	Industrial Visit to Sonomatic

ICorr Aberdeen Events



ICORR ABERDEEN BRANCH MEETING

Palm Court Hotel
81 Seafield Road, Aberdeen AB15 7YX
18:00 Complimentary Light Buffet & Networking
18:30 Technical Presentation

TUESDAY 28TH FEBRUARY, 2017

TOPIC: Monitoring High Temperature Corrosion Attack: Correlation between Corrosiveness and Results from Online Corrosion Monitoring

PRESENTER: Dr Jake Davies (Permasense)

Online monitoring of corrosion is fast becoming industry best-practice and used as a means of gathering asset valuable integrity data. These systems are especially useful when the asset is difficult to reach. This paper will demonstrate how data delivered by an online corrosion monitoring system correlated with micro-changes in the measured corrosion influencing variables during a period of high temperature corrosion attack. The monitoring system delivers both wall thickness measurements and a measure of change in shape of the ultrasonic back wall reflection over time (Permasense Shape Indicator) directly to the engineer's desk for linkage with other process information via DCS/PI systems.

The event is Free for members and non-members to attend.

Join our events mailing list at <https://sites.google.com/site/icorrabx>

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ICORR GOLD SPONSORS

Corpro Companies Europe Ltd

ICORR SUSTAINING SPONSORS

CAN Offshore, Exova, North East Corrosion Engineers, Oceaneering International Services, Plant Integrity Management, R&R Corrosion, Sonomatic Limited, Spencer Coatings, Torishima Services Solution.

<http://www.icorr.org/branches/aberdeen.html>

ICorr Aberdeen Events

Corrosion Awareness Course



- A full-day course comprises a number of lectures (5 to 6), each of which talks about a different aspect of corrosion and gives basic information on corrosion principles, corrosion mechanisms and corrosion control
- The objective of this course is to help understand corrosion as process and to raise awareness regarding corrosion management. The course takes place each year, normally in the last week of August
- The lectures are delivered by renowned Corrosion Engineers / Scientists and are provided on a voluntary basis
- Target audience are graduate engineers and non-corrosion engineers but work closely with corrosion (e.g. integrity engineers, inspection engineers, etc.), as well as engineering students
- Priority is given to candidates nominated by Sponsors, on a “first-come, first-served” basis
- The course is hosted by ICorr Aberdeen Branch through its sustaining and branch sponsorships
- Link to lectures from previous meetings:
<https://sites.google.com/site/icorrabz/resource-center>

ICorr Aberdeen Events Corrosion Awareness Course



ICorr Membership



- **Develop links** with business and professional bodies who have similar interests.
- **Enjoy the support** of an enthusiastic and experienced organisation.
- **Participate in the advancement of corrosion control** in all its forms.
- **Participate** in Branch and Divisional activities.
- **Leads to professional qualification** (FICorr, MICorr, TICorr) or certification as technicians and inspectors (Technician 1, Inspector levels 1 to 3).
- **Corrosion Awareness course** free spaces offered to students every year.
- **Keep up to date** with corrosion and corrosion control activities.



ICorr Membership



- Free student membership

<http://www.icorr.org/membership/student-membership.phtml>



The Newton Building, St George's Avenue, Northampton NN2 6JB
 TEL: +44 (0) 1604 893883 - FAX: +44 (0) 1604893878
 E-mail: admin@icorr.org Web site: <http://www.icorr.org>

APPLICATION FOR STUDENT MEMBERSHIP
 (Please TYPE or PRINT in black ink as this form will be photocopied)

- Show proof of full time enrolment at an approved science or engineering based study program.
- Submit completed form and proof of enrolment.

SURNAME <input type="text"/>	FORENAMES (in full) <input type="text"/>	Date Of Birth <input type="text"/>
PRIVATE ADDRESS including postcode <input type="text"/>		
UNIVERSITY <input type="text"/>	Date Of Joining <input type="text"/>	
COURSE <input type="text"/>		
UNIVERSITY ADDRESS including postcode <input type="text"/>		
TELEPHONE	Home <input type="text"/>	Business <input type="text"/>
	Mobile <input type="text"/>	email <input type="text"/>
Email (for correspondence) <input type="text"/>		
Which Address Do You Want To Use For Correspondence And The Journal		Home/University <input type="text"/>

You are welcome to participate in the activities of any Branch and Division and for mailing purposes, you will be allocated to the Branch covering your home location unless requested otherwise. Which Branch and Division do you wish to join? (please indicate)

Branch:	<input type="checkbox"/> Aberdeen	<input type="checkbox"/> London	<input type="checkbox"/> North East	<input type="checkbox"/> North West	<input type="checkbox"/> Yorkshire	<input type="checkbox"/> Midlands
Division(s):	<input type="checkbox"/> Corrosion Engineering	<input type="checkbox"/> Corrosion Science	<input type="checkbox"/> Young ICorr			

DECLARATION (to be signed by all applicants)

I hereby confirm that I have an interest in the practice of corrosion technology and/or science and undertake to comply with the Institute's Articles of Association and Bye-laws.

Signed: Date:

FEES: Bone-fide full-time students are eligible for ICorr membership at no cost

To qualify for the ICorr student membership rate and benefits, you must:

1. Show proof (e.g. course schedule and student ID) of enrolment as a full-time student at an approved science or engineering based study programme.
2. Submit proof of student eligibility on an annual basis at renewal. (Seven years is the maximum length of time an individual may retain student status.)

Key Information



- For further information about the institute, visit the ICorr website:

www.icorr.org

- For further information about the activities of the local section, visit Aberdeen section page on

<https://sites.google.com/site/icorrabz/>

or send an email to

icorrabz@gmail.com



ICORR ABERDEEN BRANCH MEETING

18:00 ON TUESDAY 26TH SEPTEMBER, 2017

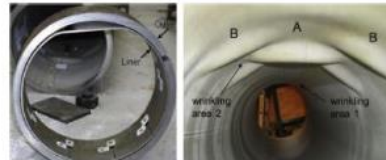
PALM COURT HOTEL

81 Seafield Road, Aberdeen AB15 7YX

18:00 Complimentary Light Buffet & Networking, 18:30 Technical Presentation

A JOINT TECHNICAL MEETING WITH TWI (THE WELDING INSTITUTE)

TOPIC: An Investigation into the Wrinkling Phenomenon on Corrosion Resistant Alloy (CRA) Pipelines and its impact on Pipeline Integrity



PRESENTER: Susan Jacob (CAN Offshore Limited)

The event is **Free** for members and non-members to attend.

Join our events mailing list at <https://sites.google.com/site/icorrabz>

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<https://www.icorr.org/events/category/aberdeen-branch/list/>

Thank you.

